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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/762,722	01/22/2004	An-Gong Yeh	FA0790USDIV	5604

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WILMINGTON, DE 19805

EXAMINER
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LEUNG, JENNIFER A

ART UNIT	PAPER NUMBER
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1764

DATE MAILED: 06/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/762,722	<b>Applicant(s)</b> YEH ET AL.	
	<b>Examiner</b> Jennifer A. Leung	<b>Art Unit</b> 1764	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 March 2006 and 11 April 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 14-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 14-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on March 22, 2006 has been entered.

### ***Response to Amendment***

2. Applicant's amendment submitted on March 22, 2006 has been received and carefully considered. Claims 1-13 have been canceled. Claims 14-18 are currently under consideration.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 14, 17 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Riggert et al. (US 3,528,782).

Riggert et al. discloses an apparatus comprising a reactor assembly comprising a sealed chamber (i.e., defined by heating jacket 4,5) positioned substantially horizontally on a supporting block (see FIG. 1, wherein the jacket 4,5 rests upon supports, not labeled); a reactor (i.e., defined by horizontally positioned drum 1) positioned coaxially inside the chamber 4,5; means for introducing aqueous vapor entrained in a carrier gas, said means comprising a lance (i.e., feed

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tube 13) having an opening positioned distally from an exhaust end of the reactor (i.e., at exhaust at connecting member 17); and an agitator assembly (i.e., comprising elements 23,24 in FIG. 8; or elements 27, 28 in FIG. 9) placed in said reactor.

Instant claims 14, 17 and 18 structurally read on the apparatus of Riggert et al.

***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 14, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deery (US 3,398,009) in view of Riggert et al. (US 3,528,782) and Billings (US 2,120,540).

Deery (FIG. 1, 2) discloses an apparatus comprising: a reactor assembly comprising a substantially, horizontally disposed reactor (i.e., enclosure 9); and means for introducing aqueous vapor entrained in a carrier gas, said means comprising a lance (i.e., conduit 13) having an opening (i.e., facing zone 1) positioned distally from an exhaust end (i.e., which faces outlet 17) of the reactor 9.

Deery discloses that the reactor 9 comprises a means for external preheating (see column 4, lines 56-62; not shown in the figures). Deery, however, is silent as to the means for external preheating comprising the instantly claimed configuration of a sealed chamber, wherein the reactor 9 would be positioned coaxially within the sealed chamber.

In any event, it would have been obvious for one of ordinary skill in the art at the time the invention was made to select the claimed chamber as the means for external preheating in the apparatus of Deery, on the basis of suitability for the intended use thereof, because the provision of such means for preheating (i.e., essentially a heat transfer jacket) is well known in the art.

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Riggert et al. is cited to further evidence the conventionality of a sealed chamber or heat transfer jacket 4,5 for heating a reactor 1 (see FIG. 1).

Deery further discloses that,

“... it is much preferred that said black be substantially constantly agitated within both of said heated zones. In this manner the black tends to be uniformly treated in each zone.

Said agitation can be accomplished in any suitable manner such as by rolling the bed of black, using lifter blades or by vibrating the black while it is passing through the zones.”  
(column 3, lines 63-72).

Thus, it would have been obvious for one of ordinary skill in the art at the time the invention was made to provide an agitator assembly within the reactor 9 in the apparatus of Deery et al., on the basis of suitability for the intended use thereof, because agitation is disclosed as being preferred, and the provision of agitator assemblies for agitating carbon black is conventionally known in the art, as evidenced by Billings et al. (see FIG. 1, 2).

Although a “supporting block” is not shown for supporting the reactor assembly, some means of support must be inherent of the apparatus, since the reactor assembly does not simply “float”. Furthermore, the provision of supporting blocks for supporting horizontally disposed reactor assemblies is conventional in the art, as further evidenced by Riggert et al. (i.e., the jacket 4,5 rests on blocks, not labeled; see FIG. 1).

5. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Deery (US 3,398,009) in view of Riggert et al. (US 3,528,782) and Billings (US 2,120,540), as applied to claim 14 above, and further in view of Hagopian (US 3,620,792).

Deery discloses that conduit 13 is used to supply a nitrogenous oxidizing agent to the reactor 9 (column 2, lines 13-19). Deery, however, is silent as to the supply of an oxidizing

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agent comprising ozone, such that the apparatus further comprises a “means for supplying ozone to said reactor”. Hagopian teaches supplying an oxide of nitrogen in combination with ozone as an additive in an aftertreatment process for preparing modified carbon blacks, the ozone being generated by means of a commercial ozone generator (see abstract; column 3, lines 40-45). It would have been obvious for one of ordinary skill in the art at the time the invention was made to provide a means for supplying ozone to said reactor 9 in the modified apparatus of Deery, because the use of ozone as an oxidizing agent for carbon black is well known in the art (see column 2, lines 14-32), and the combination of a nitrogenous oxidizing agent and ozone produces carbon blacks having excellent flow properties and tinting strength, and a high degree of dispersibility (see column 2, lines 37-40), as taught by Hagopian.

6. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Deery (US 3,398,009) in view of Riggert et al. (US 3,528,782) and Billings (US 2,120,540), as applied to claim 14 above, and further in view of Bliss (US 5,037,210).

The agitator assembly taught by Billings comprises a plurality of vanes (i.e., blades 30) mounted on a flange (see FIGs. 1 and 2, wherein blades 30 are secured on flanges, not labeled, connected to shaft 22) rotatably positioned in a reactor. Billings, however, is silent as to each vane having a coil affixed thereto such that the coils physically contact an inner wall of the reactor. Bliss (FIG. 1; column 2, line 49 to column 3, line 16) teaches an agitator assembly comprising a coil 5 that may physically contact the inner wall of a vessel (i.e., “Pivotal freedom provides benefit in allowing coil 5 to remain squarely seated against the mixing container bottom”). It would have been obvious for one of ordinary skill in the art at the time the invention was made to provide a coil to each of the plurality of vanes in the modified apparatus

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of Deery, on the basis of suitability for the intended use thereof, because, in the case of mixing powdered materials, the coils facilitate the dispersion of agglomerated materials, as taught by Bliss (column 1, lines 33-67).

***Response to Arguments***

7. Applicant's arguments with respect to claims 14-18 have been considered but are moot in view of the new ground(s) of rejection, necessitated by amendment.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A. Leung whose telephone number is (571) 272-1449. The examiner can normally be reached on 9:30 am - 5:30 pm Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn A. Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jennifer A. Leung  
June 19, 2006 *JAL*

*Alexa Doroshenk Neckel*  
ALEXA DOROSHENK NECKEL  
PRIMARY EXAMINER